

## **Note on BC Construction Cost Spreadsheets**

The following spreadsheets provide quantities and unit costs for roadway segments starting at Mile Post 29, the US/Canada border and ending at Mile Post 86, at the junction with the Cassiar Highway. Costs are summarized in 4-mile increments. Separate spreadsheets were prepared for a 7.2-meter wide asphalt road and for a 6-meter wide gravel road.

**Bradfield Canal Access Road**  
**Mile Post 29 to Mile Post 47**  
**McElhanney Job No.: 2211-46660-0**

Segment: **1**  
Starting Mile Post **29**  
Ending Mile Post **32**  
Km Length: **4.828**

**Proposed new 7.2m wide Asphalt road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
29 to 32	m	4828	\$532			\$2,569,350			\$2,569,350
Creek Crossing @ Mile 30	m	23	\$7,000				\$160,020		\$160,020
Creek Crossing @ Mile 30.35	m	46	\$10,000				\$457,200		\$457,200
Creek Crossing @ Mile 31.5	m	76	\$10,000				\$762,000		\$762,000
1200 mm C.S.P. @ Mile 30.95	m	10	\$150					\$1,500	\$1,500
2 - 2400 mm C.S.P. @ Mile 31.1	m	10	\$450					\$4,500	\$4,500
W - Beam Guardrail	m	2897	\$165						\$477,975
Rip Rap	m <sup>3</sup>	75	\$33						\$2,475
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$4,447,230</b>
Mobilization ~7% of total									\$311,306
Geotechnical 3%									\$133,417
Environmental 5%									\$222,362
Engineering & Surveying 8%									\$355,778
Construction Supervision 5%									\$222,362
Contingency 30%									\$1,334,169
<b>Total</b>				\$0	\$0	\$2,569,350	\$1,379,220	\$6,000	\$7,027,000

Segment: **2**  
Starting Mile Post **32**  
Ending Mile Post **35**  
Km Length: **4.828**

**Proposed new 7.2m wide Asphalt road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
32 to 35	m	4828	\$961			\$4,640,576			\$4,640,576
3 - 2400 mm C.S.P. @ Mile 32.4	m	30	\$450					\$13,500	\$13,500
2400 mm C.S.P. @ Mile 32.6	m	10	\$450					\$4,500	\$4,500
3 - 2400 mm C.S.P. @ Mile 32.9	m	30	\$450					\$13,500	\$13,500
1800 mm C.S.P. @ Mile 34.75	m	10	\$285					\$2,850	\$2,850
1800 mm C.S.P. @ Mile 34.95	m	10	\$285					\$2,850	\$2,850
W - Beam Guardrail	m	2897	\$165						\$477,975
Rip Rap	m <sup>3</sup>	130	\$33						\$4,290
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$5,172,251</b>
Mobilization ~7% of total									\$362,058
Geotechnical 3%									\$155,168
Environmental 5%									\$258,613
Engineering & Surveying 8%									\$413,780
Construction Supervision 5%									\$258,613
Contingency 30%									\$1,551,675
<b>Total</b>				\$0	\$0	\$4,640,576	\$0	\$37,200	\$8,172,000

**Bradfield Canal Access Road**  
**Mile Post 29 to Mile Post 47**  
**McElhanney Job No.: 2211-46660-0**

Segment: **3**  
Starting Mile Post **35**  
Ending Mile Post **38**  
Km Length: **4.828**

**Proposed new 7.2m wide Asphalt road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
35 to 38	m	4828	\$961			\$4,640,576			\$4,640,576
Brunt Creek Crossing @ Mile 36.8	m	23	\$7,000				\$160,020		\$160,020
1800 mm C.S.P. @ Mile 35.2	m	10	\$285					\$2,850	\$2,850
1800 mm C.S.P. @ Mile 35.4	m	10	\$285					\$2,850	\$2,850
1800 mm C.S.P. @ Mile 35.85	m	10	\$285					\$2,850	\$2,850
1800 mm C.S.P. @ Mile 35.95	m	10	\$285					\$2,850	\$2,850
2400 mm C.S.P. @ Mile 36.1	m	10	\$450					\$4,500	\$4,500
1200 mm C.S.P. @ Mile 36.3	m	10	\$150					\$1,500	\$1,500
W - Beam Guardrail	m	2897	\$165						\$477,975
Class 10 Rip Rap	m <sup>3</sup>	140	\$33						\$4,620
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$5,312,801</b>
Mobilization ~7% of total									\$371,896
Geotechnical 3%									\$159,384
Environmental 5%									\$265,640
Engineering & Surveying 8%									\$425,024
Construction Supervision 5%									\$265,640
Contingency 30%									\$1,593,840
<b>Total</b>				\$0	\$0	\$4,640,576	\$160,020	\$17,400	\$8,394,000

Segment: **4**  
Starting Mile Post **38**  
Ending Mile Post **41**  
Km Length: **4.828**

**Proposed new 7.2m wide Asphalt road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
38 to 41	m	4828	\$961			\$4,640,576			\$4,640,576
Creek Crossing @ Mile 38.85	m	37	\$10,000				\$365,760		\$365,760
Jekill River Crossing @ Mile 39.65	m	162	\$10,000				\$1,615,440		\$1,615,440
1800 mm C.S.P. @ Mile 38.25	m	10	\$285					\$2,850	\$2,850
2 - 2400 mm C.S.P. @ Mile 40.25	m	20	\$450					\$9,000	\$9,000
W - Beam Guardrail	m	2897	\$165						\$477,975
Rip Rap	m <sup>3</sup>	80	\$33						\$2,640
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$7,126,451</b>
Mobilization ~7% of total									\$498,852
Geotechnical 3%									\$213,794
Environmental 5%									\$356,323
Engineering & Surveying 8%									\$570,116
Construction Supervision 5%									\$356,323
Contingency 30%									\$2,137,935
<b>Total</b>				\$0	\$0	\$4,640,576	\$1,981,200	\$11,850	\$11,260,000

**Bradfield Canal Access Road**  
**Mile Post 29 to Mile Post 47**  
**McElhanney Job No.: 2211-46660-0**

Segment: **5**  
Starting Mile Post **41**  
Ending Mile Post **44**  
Km Length: **4.828**

**Proposed new 7.2m wide Asphalt road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
41 to 44	m	4828	\$344	\$1,659,266					\$1,659,266
Creek Crossing @ Mile 41.6	m	113	\$10,000				\$1,127,760		\$1,127,760
Creek Crossing @ Mile 43.7	m	76	\$10,000				\$762,000		\$762,000
2 - 2400 mm C.S.P. @ Mile 43	m	20	\$450					\$9,000	\$9,000
W - Beam Guardrail	m	2897	\$165						\$477,975
Rip Rap	m <sup>3</sup>	50	\$33						\$1,650
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$4,049,861</b>
Mobilization ~7% of total									\$283,490
Geotechnical 3%									\$121,496
Environmental 5%									\$202,493
Engineering & Surveying 8%									\$323,989
Construction Supervision 5%									\$202,493
Contingency 30%									\$1,214,958
<b>Total</b>				\$1,659,266	\$0	\$0	\$1,889,760	\$9,000	\$6,399,000

Segment: **6**  
Starting Mile Post **44**  
Ending Mile Post **47**  
Km Length: **4.828**

**Proposed new 7.2m wide Asphalt road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
44 to 47	m	4828	\$344	\$1,659,266					\$1,659,266
Creek Crossing @ Mile 45.3	m	162	\$10,000				\$1,615,440		\$1,615,440
Creek Crossing @ Mile 46.5	m	61	\$10,000				\$609,600		\$609,600
1800 mm C.S.P. @ Mile 44.08	m	10	\$285					\$2,850	\$2,850
1600 mm C.S.P. @ Mile 44.7	m	10	\$255					\$2,550	\$2,550
1800 mm C.S.P. @ Mile 46.7	m	10	\$285					\$2,850	\$2,850
W - Beam Guardrail	m	2897	\$165						\$477,975
Rip Rap	m <sup>3</sup>	70	\$33						\$2,310
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$4,385,051</b>
Mobilization ~7% of total									\$306,954
Geotechnical 3%									\$131,552
Environmental 5%									\$219,253
Engineering & Surveying 8%									\$350,804
Construction Supervision 5%									\$219,253
Contingency 30%									\$1,315,515
<b>Total</b>				\$1,659,266	\$0	\$0	\$2,225,040	\$8,250	\$6,928,000

<b>Total</b>	<b>\$30,493,644</b>
Mobilization ~7% of total	<b>\$2,134,555</b>
Geotechnical 3%	<b>\$914,809</b>
Environmental 5%	<b>\$1,524,682</b>
Engineering & Surveying 8%	<b>\$2,439,492</b>
Construction Supervision 5%	<b>\$1,524,682</b>
Contingency 30%	<b>\$9,148,093</b>
<b>TOTALS</b>	<b>\$3,318,532    \$0    \$16,491,077    \$7,635,240    \$89,700    \$48,180,000</b>

\$1,663,204

	Units	Qty	Cost	
Segment mile to mile	m	28968	\$19,809,608	\$683,840
Bridges	m		\$7,635,240	
Culverts	m		\$89,700	
W - Beam Guardrail	m	17381	\$2,867,851	
Rip Rap	m <sup>3</sup>	545	\$17,985	
Signs	ea.	198	\$39,600	
Survey Monuments w / cases	ea.	102	\$33,660	
<b>Total</b>			<b>\$30,493,644</b>	

**Bradfield Canal Access Road**  
**Mile Post 47 to Mile Post 65**  
**McElhanney Job No.: 2211-46660-0**

Segment: **7**  
Starting Mile Post **47**  
Ending Mile Post **50**  
Km Length: **4.828**

**Proposed new 7.2m wide Asphalt road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
47 to 50	m	4828	\$519		\$2,506,585				\$2,506,585
Creek Crossing @ Mile 49.75	m	55	\$10,000				\$548,640		\$548,640
W - Beam Guardrail	m	2897	\$165						\$477,975
Rip Rap	m <sup>3</sup>	75	\$33						\$2,475
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$3,547,886</b>
Mobilization ~7% of total									\$248,352
Geotechnical 3%									\$106,437
Environmental 5%									\$177,394
Engineering & Surveying 8%									\$283,831
Construction Supervision 5%									\$177,394
Contingency 30%									\$1,064,366
<b>Total</b>				\$0	\$2,506,585	\$0	\$548,640	\$0	\$5,606,000

Segment: **8**  
Starting Mile Post **50**  
Ending Mile Post **53**  
Km Length: **4.828**

**Proposed new 7.2m wide Asphalt road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
50 to 53	m	4828	\$532			\$2,569,350			\$2,569,350
2 - 2400 mm C.S.P. @ Mile 51.4	m	30	\$450					\$13,500	\$13,500
3 - 2400 mm C.S.P. @ Mile 51.6	m	45	\$450					\$20,250	\$20,250
3 - 2400 mm C.S.P. @ Mile 52.0	m	45	\$450					\$20,250	\$20,250
2 - 2400 mm C.S.P. @ Mile 52.25	m	45	\$450					\$20,250	\$20,250
W - Beam Guardrail	m	2897	\$165						\$477,975
Rip Rap	m <sup>3</sup>	150	\$33						\$4,950
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$3,138,735</b>
Mobilization ~7% of total									\$219,711
Geotechnical 3%									\$94,162
Environmental 5%									\$156,937
Engineering & Surveying 8%									\$251,099
Construction Supervision 5%									\$156,937
Contingency 30%									\$941,621
<b>Total</b>				\$0	\$0	\$2,569,350	\$0	\$74,250	\$4,959,000

**Bradfield Canal Access Road**  
**Mile Post 47 to Mile Post 65**  
**McElhanney Job No.: 2211-46660-0**

Segment: **9**  
Starting Mile Post: **53**  
Ending Mile Post: **56**  
Km Length: **4.828**

**Proposed new 7.2m wide Asphalt road**

Segment mile to mile	Unit	Quantity	Unit \$\$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
53 to 56	m	4828	\$532			\$2,569,350			\$2,569,350
Creek Crossing @ Mile 53.9	m	162	\$10,000				\$1,615,440		\$1,615,440
Creek Crossing @ Mile 55.6	m	122	\$10,000				\$1,219,200		\$1,219,200
2 - 2400 mm C.S.P. @ Mile 51.4	m	30	\$450					\$13,500	\$13,500
W - Beam Guardrail	m	2897	\$165						\$477,975
Class 10 Rip Rap	m <sup>3</sup>	25	\$33						\$825
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$5,908,500</b>
Mobilization ~7% of total									\$413,595
Geotechnical 3%									\$177,255
Environmental 5%									\$295,425
Engineering & Surveying 8%									\$472,680
Construction Supervision 5%									\$295,425
Contingency 30%									\$1,772,550
<b>Total</b>				\$0	\$0	\$2,569,350	\$2,834,640	\$13,500	\$9,335,000

Segment: **10**  
Starting Mile Post: **56**  
Ending Mile Post: **59**  
Km Length: **4.828**

**Proposed new 7.2m wide Asphalt road**

Segment mile to mile	Unit	Quantity	Unit \$\$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
56 to 59	m	4828	\$344			\$1,659,266			\$1,659,266
Creek Crossing @ Mile 58.1	m	30	\$10,000				\$304,800		\$304,800
Creek Crossing @ Mile 58.8	m	98	\$10,000				\$975,360		\$975,360
W - Beam Guardrail	m	2897	\$165						\$477,975
Rip Rap	m <sup>3</sup>	50	\$33						\$1,650
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$3,431,261</b>
Mobilization ~7% of total									\$240,188
Geotechnical 3%									\$102,938
Environmental 5%									\$171,563
Engineering & Surveying 8%									\$274,501
Construction Supervision 5%									\$171,563
Contingency 30%									\$1,029,378
<b>Total</b>				\$0	\$0	\$1,659,266	\$1,280,160	\$0	\$5,421,000

**Bradfield Canal Access Road**  
**Mile Post 47 to Mile Post 65**  
**McElhanney Job No.: 2211-46660-0**

Segment: **11**  
 Starting Mile Post **59**  
 Ending Mile Post **62**  
 Km Length: **4.828**

**Proposed new 7.2m wide Asphalt road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
59 to 62	m	4828	\$344	\$1,659,266					\$1,659,266
Creek Crossing @ Mile 60.6	m	23	\$7,000				\$160,020		\$160,020
2 - 2400 mm C.S.P. @ Mile 60.5	m	20	\$450					\$9,000	\$9,000
W - Beam Guardrail	m	2897	\$165						\$477,975
Rip Rap	m <sup>3</sup>	50	\$33						\$1,650
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$2,320,121</b>
Mobilization ~7% of total									\$162,408
Geotechnical 3%									\$69,604
Environmental 5%									\$116,006
Engineering & Surveying 8%									\$185,610
Construction Supervision 5%									\$116,006
Contingency 30%									\$696,036
<b>Total</b>				\$1,659,266	\$0	\$0	\$160,020	\$9,000	\$3,666,000

Segment: **12**  
 Starting Mile Post **62**  
 Ending Mile Post **65**  
 Km Length: **4.828**

**Proposed new 7.2m wide Asphalt road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
62 to 65	m	4828	\$314	\$1,518,046					\$1,518,046
W - Beam Guardrail	m	0	\$165						\$0
Rip Rap	m <sup>3</sup>	50	\$33						\$1,650
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$1,531,906</b>
Mobilization ~7% of total									\$107,233
Geotechnical 3%									\$45,957
Environmental 5%									\$76,595
Engineering & Surveying 8%									\$122,552
Construction Supervision 5%									\$76,595
Contingency 30%									\$459,572
<b>Total</b>				\$1,518,046	\$0	\$0	\$0	\$0	\$2,420,000

<b>Total</b>	<b>\$19,878,409</b>
Mobilization ~7% of total	<b>\$1,391,489</b>
Geotechnical 3%	<b>\$596,352</b>
Environmental 5%	<b>\$993,920</b>
Engineering & Surveying 8%	<b>\$1,590,273</b>
Construction Supervision 5%	<b>\$993,920</b>
Contingency 30%	<b>\$5,963,523</b>
<b>TOTALS</b>	<b>\$3,177,312    \$2,506,585    \$6,797,966    \$4,823,460    \$96,750    \$31,407,000</b>

\$1,084,189

	Units	Qty	Cost	
Segment mile to mile	m	28968	\$12,481,863	\$430,882
Bridges	m		\$3,604,260	
Culverts	m		\$1,315,950	
W - Beam Guardrail	m	14484	\$2,389,876	
Rip Rap	m <sup>3</sup>	400	\$13,200	
Signs	ea.	198	\$39,600	
Survey Monuments w / cases	ea.	102	\$33,660	
<b>Total</b>			<b>\$19,878,409</b>	

Bradfield Canal Access Road  
Mile Post 65 to Mile Post 86  
McElhanney Job No.: 2211-46660-0

Segment: 13  
Starting km 0  
Ending km 36  
Km Length: 36.000

Upgrade existing gravel road to Asphalt paved road ~8m wide

Segment km to km	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
0 to 36	m	36000	\$262		\$9,423,600				\$9,423,600
W - Beam Guardrail	m	7200	\$165						\$1,188,000
Rip Rap	m <sup>3</sup>		\$33						\$0
Signs	ea.	72	\$200						\$14,400
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$10,631,610</b>
Mobilization ~7% of total									\$744,213
Geotechnical 3%									\$318,948
Environmental 5%									\$531,581
Engineering & Surveying 8%									\$850,529
Construction Supervision 5%									\$531,581
Contingency 30%									\$3,189,483
<b>Total</b>									<b>\$16,798,000</b>



**Bradfield Canal Access Road**  
**Mile Post 29 to Mile Post 47**  
**McElhanney Job No.: 2211-46660-0**

Segment: **1**  
Starting Mile Post **29**  
Ending Mile Post **32**  
Km Length: **4.828**

**Proposed new 6 m wide gravel road**

Segment mile to mile	Unit	Quantity	Unit \$\$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
29 to 32	m	4828	\$380			\$1,833,847			\$1,833,847
Creek Crossing @ Mile 30	m	23	\$7,000				\$160,020		\$160,020
Creek Crossing @ Mile 30.35	m	46	\$10,000				\$457,200		\$457,200
Creek Crossing @ Mile 31.5	m	76	\$10,000				\$762,000		\$762,000
1200 mm C.S.P. @ Mile 30.95	m	10	\$150					\$1,500	\$1,500
2 - 2400 mm C.S.P. @ Mile 31.1	m	10	\$450					\$4,500	\$4,500
W - Beam Guardrail	m	1448	\$165						\$238,988
Rip Rap	m <sup>3</sup>	75	\$33						\$2,475
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$3,472,740</b>
Mobilization ~7% of total									\$243,092
Geotechnical 3%									\$104,182
Environmental 5%									\$173,637
Engineering & Surveying 8%									\$277,819
Construction Supervision 5%									\$173,637
Contingency 30%									\$1,041,822
<b>Total</b>				\$0	\$0	\$1,833,847	\$1,379,220	\$6,000	\$5,487,000

Segment: **2**  
Starting Mile Post **32**  
Ending Mile Post **35**  
Km Length: **4.828**

**Proposed new 6 m wide gravel road**

Segment mile to mile	Unit	Quantity	Unit \$\$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
32 to 35	m	4828	\$659			\$3,183,282			\$3,183,282
3 - 2400 mm C.S.P. @ Mile 32.4	m	30	\$450					\$13,500	\$13,500
2400 mm C.S.P. @ Mile 32.6	m	10	\$450					\$4,500	\$4,500
3 - 2400 mm C.S.P. @ Mile 32.9	m	30	\$450					\$13,500	\$13,500
1800 mm C.S.P. @ Mile 34.75	m	10	\$285					\$2,850	\$2,850
1800 mm C.S.P. @ Mile 34.95	m	10	\$285					\$2,850	\$2,850
W - Beam Guardrail	m	1448	\$165						\$238,988
Rip Rap	m <sup>3</sup>	130	\$33						\$4,290
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$3,475,970</b>
Mobilization ~7% of total									\$243,318
Geotechnical 3%									\$104,279
Environmental 5%									\$173,799
Engineering & Surveying 8%									\$278,078
Construction Supervision 5%									\$173,799
Contingency 30%									\$1,042,791
<b>Total</b>				\$0	\$0	\$3,183,282	\$0	\$37,200	\$5,492,000

**Bradfield Canal Access Road**  
**Mile Post 29 to Mile Post 47**  
**McElhanney Job No.: 2211-46660-0**

Segment: **3**  
Starting Mile Post **35**  
Ending Mile Post **38**  
Km Length: **4.828**

**Proposed new 6 m wide gravel road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
35 to 38	m	4828	\$659			\$3,183,282			\$3,183,282
Brunt Creek Crossing @ Mile 36.8	m	23	\$7,000				\$160,020		\$160,020
1800 mm C.S.P. @ Mile 35.2	m	10	\$285					\$2,850	\$2,850
1800 mm C.S.P. @ Mile 35.4	m	10	\$285					\$2,850	\$2,850
1800 mm C.S.P. @ Mile 35.85	m	10	\$285					\$2,850	\$2,850
1800 mm C.S.P. @ Mile 35.95	m	10	\$285					\$2,850	\$2,850
2400 mm C.S.P. @ Mile 36.1	m	10	\$450				\$4,500		\$4,500
1200 mm C.S.P. @ Mile 36.3	m	10	\$150					\$1,500	\$1,500
W - Beam Guardrail	m	1448	\$165						\$238,988
Class 10 Rip Rap	m <sup>3</sup>	140	\$33						\$4,620
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$3,616,520</b>
Mobilization ~7% of total									\$253,156
Geotechnical 3%									\$108,496
Environmental 5%									\$180,826
Engineering & Surveying 8%									\$289,322
Construction Supervision 5%									\$180,826
Contingency 30%									\$1,084,956
<b>Total</b>				\$0	\$0	\$3,183,282	\$160,020	\$17,400	\$5,714,000

Segment: **4**  
Starting Mile Post **38**  
Ending Mile Post **41**  
Km Length: **4.828**

**Proposed new 6 m wide gravel road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
38 to 41	m	4828	\$659			\$3,183,282			\$3,183,282
Creek Crossing @ Mile 38.85	m	37	\$10,000				\$365,760		\$365,760
Jekill River Crossing @ Mile 39.65	m	162	\$10,000				\$1,615,440		\$1,615,440
1800 mm C.S.P. @ Mile 38.25	m	10	\$285					\$2,850	\$2,850
2 - 2400 mm C.S.P. @ Mile 40.25	m	20	\$450					\$9,000	\$9,000
W - Beam Guardrail	m	1448	\$165						\$238,988
Rip Rap	m <sup>3</sup>	80	\$33						\$2,640
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$5,430,170</b>
Mobilization ~7% of total									\$380,112
Geotechnical 3%									\$162,905
Environmental 5%									\$271,509
Engineering & Surveying 8%									\$434,414
Construction Supervision 5%									\$271,509
Contingency 30%									\$1,629,051
<b>Total</b>				\$0	\$0	\$3,183,282	\$1,981,200	\$11,850	\$8,580,000

**Bradfield Canal Access Road**  
**Mile Post 29 to Mile Post 47**  
**McElhanney Job No.: 2211-46660-0**

Segment: **5**  
Starting Mile Post: **41**  
Ending Mile Post: **44**  
Km Length: **4.828**

**Proposed new 6 m wide gravel road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
41 to 44	m	4828	\$191	\$923,763					\$923,763
Creek Crossing @ Mile 41.6	m	113	\$10,000				\$1,127,760		\$1,127,760
Creek Crossing @ Mile 43.7	m	76	\$10,000				\$762,000		\$762,000
2 - 2400 mm C.S.P. @ Mile 43	m	20	\$450					\$9,000	\$9,000
W - Beam Guardrail	m	1448	\$165						\$238,988
Rip Rap	m <sup>3</sup>	50	\$33						\$1,650
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$3,075,371</b>
Mobilization ~7% of total									\$215,276
Geotechnical 3%									\$92,261
Environmental 5%									\$153,769
Engineering & Surveying 8%									\$246,030
Construction Supervision 5%									\$153,769
Contingency 30%									\$922,611
<b>Total</b>				\$923,763	\$0	\$0	\$1,889,760	\$9,000	\$4,859,000

Segment: **6**  
Starting Mile Post: **44**  
Ending Mile Post: **47**  
Km Length: **4.828**

**Proposed new 6 m wide gravel road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
44 to 47	m	4828	\$191	\$923,763					\$923,763
Creek Crossing @ Mile 45.3	m	162	\$10,000				\$1,615,440		\$1,615,440
Creek Crossing @ Mile 46.5	m	61	\$10,000				\$609,600		\$609,600
1800 mm C.S.P. @ Mile 44.08	m	10	\$285					\$2,850	\$2,850
1600 mm C.S.P. @ Mile 44.7	m	10	\$255					\$2,550	\$2,550
1800 mm C.S.P. @ Mile 46.7	m	10	\$285					\$2,850	\$2,850
W - Beam Guardrail	m	1448	\$165						\$238,988
Rip Rap	m <sup>3</sup>	70	\$33						\$2,310
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$3,410,561</b>
Mobilization ~7% of total									\$238,739
Geotechnical 3%									\$102,317
Environmental 5%									\$170,528
Engineering & Surveying 8%									\$272,845
Construction Supervision 5%									\$170,528
Contingency 30%									\$1,023,168
<b>Total</b>				\$923,763	\$0	\$0	\$2,225,040	\$8,250	\$5,389,000

<b>Total</b>	<b>\$22,481,332</b>
Mobilization ~7% of total	<b>\$1,573,693</b>
Geotechnical 3%	<b>\$674,440</b>
Environmental 5%	<b>\$1,124,067</b>
Engineering & Surveying 8%	<b>\$1,798,507</b>
Construction Supervision 5%	<b>\$1,124,067</b>
Contingency 30%	<b>\$6,744,400</b>
<b>TOTALS</b>	<b>\$11,847,527</b>
	<b>\$0</b>
	<b>\$11,383,695</b>
	<b>\$7,635,240</b>
	<b>\$89,700</b>
	<b>\$35,521,000</b>

\$1,226,207

	Units	Qty	Cost	
Segment mile to mile	m	28968	\$13,231,222	\$456,750
Bridges	m		\$7,635,240	
Culverts	m		\$89,700	
W - Beam Guardrail	m	8690	\$1,433,926	
Rip Rap	m <sup>3</sup>	545	\$17,985	
Signs	ea.	198	\$39,600	
Survey Monuments w / cases	ea.	102	\$33,660	
<b>Total</b>			<b>\$22,481,332</b>	

**Bradfield Canal Access Road**  
**Mile Post 47 to Mile Post 65**  
**McElhanney Job No.: 2211-46660-0**

Segment: **7**  
 Starting Mile Post **47**  
 Ending Mile Post **50**  
 Km Length: **4.828**

**Proposed new 6 m wide gravel road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
47 to 50	m	4828	\$347		\$1,676,936				\$1,676,936
Creek Crossing @ Mile 49.75	m	55	\$10,000				\$548,640		\$548,640
W - Beam Guardrail	m	1448	\$165						\$238,988
Rip Rap	m <sup>3</sup>		\$33						\$0
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$2,476,774</b>
Mobilization ~7% of total									\$173,374
Geotechnical 3%									\$74,303
Environmental 5%									\$123,839
Engineering & Surveying 8%									\$198,142
Construction Supervision 5%									\$123,839
Contingency 30%									\$743,032
<b>Total</b>				\$0	\$1,676,936	\$0	\$548,640	\$0	\$3,913,000

Segment: **8**  
 Starting Mile Post **50**  
 Ending Mile Post **53**  
 Km Length: **4.828**

**Proposed new 6 m wide gravel road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
50 to 53	m	4828	\$380			\$1,833,847			\$1,833,847
2 - 2400 mm C.S.P. @ Mile 51.4	m	30	\$450					\$13,500	\$13,500
3 - 2400 mm C.S.P. @ Mile 51.6	m	45	\$450					\$20,250	\$20,250
3 - 2400 mm C.S.P. @ Mile 52.0	m	45	\$450					\$20,250	\$20,250
2 - 2400 mm C.S.P. @ Mile 52.25	m	45	\$450					\$20,250	\$20,250
W - Beam Guardrail	m	1448	\$165						\$238,988
Rip Rap	m <sup>3</sup>	150	\$33						\$4,950
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$2,164,245</b>
Mobilization ~7% of total									\$151,497
Geotechnical 3%									\$64,927
Environmental 5%									\$108,212
Engineering & Surveying 8%									\$173,140
Construction Supervision 5%									\$108,212
Contingency 30%									\$649,274
<b>Total</b>				\$0	\$0	\$1,833,847	\$0	\$74,250	\$3,420,000

Bradfield Canal Access Road  
 Mile Post 47 to Mile Post 65  
 McElhanney Job No.: 2211-46660-0

Segment: **9**  
 Starting Mile Post **53**  
 Ending Mile Post **56**  
 Km Length: **4.828**

**Proposed new 6 m wide gravel road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
53 to 56	m	4828	\$380			\$1,833,847			\$1,833,847
Creek Crossing @ Mile 53.9	m	162	\$10,000				\$1,615,440		\$1,615,440
Creek Crossing @ Mile 55.6	m	122	\$10,000				\$1,219,200		\$1,219,200
2 - 2400 mm C.S.P. @ Mile 51.4	m	30	\$450					\$13,500	\$13,500
W - Beam Guardrail	m	1448	\$165						\$238,988
Class 10 Rip Rap	m <sup>3</sup>	25	\$33						\$825
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$4,934,010</b>
Mobilization ~7% of total									\$345,381
Geotechnical 3%									\$148,020
Environmental 5%									\$246,701
Engineering & Surveying 8%									\$394,721
Construction Supervision 5%									\$246,701
Contingency 30%									\$1,480,203
<b>Total</b>				\$0	\$0	\$1,833,847	\$2,834,640	\$13,500	\$7,796,000

Segment: **10**  
 Starting Mile Post **56**  
 Ending Mile Post **59**  
 Km Length: **4.828**

**Proposed new 6 m wide gravel road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
56 to 59	m	4828	\$191			\$923,763			\$923,763
Creek Crossing @ Mile 58.1	m	30	\$10,000				\$304,800		\$304,800
Creek Crossing @ Mile 58.8	m	98	\$10,000				\$975,360		\$975,360
W - Beam Guardrail	m	966	\$165						\$159,325
Rip Rap	m <sup>3</sup>	50	\$33						\$1,650
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$2,377,109</b>
Mobilization ~7% of total									\$166,398
Geotechnical 3%									\$71,313
Environmental 5%									\$118,855
Engineering & Surveying 8%									\$190,169
Construction Supervision 5%									\$118,855
Contingency 30%									\$713,133
<b>Total</b>				\$0	\$0	\$923,763	\$1,280,160	\$0	\$3,756,000

**Bradfield Canal Access Road**  
**Mile Post 47 to Mile Post 65**  
**McElhanney Job No.: 2211-46660-0**

Segment: **11**  
Starting Mile Post **59**  
Ending Mile Post **62**  
Km Length: **4.828**

**Proposed new 6 m wide gravel road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
59 to 62	m	4828	\$191	\$923,763					\$923,763
Creek Crossing @ Mile 60.6	m	23	\$7,000				\$160,020		\$160,020
2 - 2400 mm C.S.P. @ Mile 60.5	m	20	\$450					\$9,000	\$9,000
W - Beam Guardrail	m	483	\$165						\$79,663
Rip Rap	m <sup>3</sup>	50	\$33						\$1,650
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$1,186,306</b>
Mobilization ~7% of total									\$83,041
Geotechnical 3%									\$35,589
Environmental 5%									\$59,315
Engineering & Surveying 8%									\$94,904
Construction Supervision 5%									\$59,315
Contingency 30%									\$355,892
<b>Total</b>				\$923,763	\$0	\$0	\$160,020	\$9,000	\$1,874,000

Segment: **12**  
Starting Mile Post **62**  
Ending Mile Post **65**  
Km Length: **4.828**

**Proposed new 6 m wide gravel road**

Segment mile to mile	Unit	Quantity	Unit \$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
62 to 65	m	4828	\$182	\$876,690					\$876,690
W - Beam Guardrail	m	0	\$165						\$0
Rip Rap	m <sup>3</sup>	50	\$33						\$1,650
Signs	ea.	33	\$200						\$6,600
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$890,550</b>
Mobilization ~7% of total									\$62,339
Geotechnical 3%									\$26,717
Environmental 5%									\$44,528
Engineering & Surveying 8%									\$71,244
Construction Supervision 5%									\$44,528
Contingency 30%									\$267,165
<b>Total</b>				\$876,690	\$0	\$0	\$0	\$0	\$1,407,000

<b>Total</b>	<b>\$14,028,994</b>
Mobilization ~7% of total	<b>\$982,030</b>
Geotechnical 3%	<b>\$420,870</b>
Environmental 5%	<b>\$701,450</b>
Engineering & Surveying 8%	<b>\$1,122,320</b>
Construction Supervision 5%	<b>\$701,450</b>
Contingency 30%	<b>\$4,208,698</b>
<b>TOTALS</b>	<b>\$1,800,454    \$1,676,936    \$4,591,458    \$4,823,460    \$96,750    \$22,166,000</b>

\$765,184

	Units	Qty	Cost	
Segment mile to mile	m	28968	\$8,068,848	\$278,542
Bridges	m		\$3,604,260	
Culverts	m		\$1,315,950	
W - Beam Guardrail	m	5794	\$955,950	
Rip Rap	m <sup>3</sup>	325	\$10,725	
Signs	ea.	198	\$39,600	
Survey Monuments w / cases	ea.	102	\$33,660	
<b>Total</b>			<b>\$14,028,994</b>	

Bradfield Canal Access Road  
Mile Post 65 to Mile Post 86  
McElhanney Job No.: 2211-46660-0

Segment: 13  
Starting km 0  
Ending km 36  
Km Length: 36.000

Upgrade existing gravel road ~8m wide

Segment km to km	Unit	Quantity	Unit \$\$	Terrain			Bridge	Culverts	Total Cost
				Flat	Rolling	Steep			
0 to 36	m	36000	\$104		\$3,750,000				\$3,750,000
W - Beam Guardrail	m	0	\$165						\$0
Rip Rap	m <sup>3</sup>		\$33						\$0
Signs	ea.	72	\$200						\$14,400
Survey Monuments w / cases	ea.	17	\$330						\$5,610
<b>Total</b>									<b>\$3,770,010</b>
Mobilization ~7% of total									\$263,901
Geotechnical 3%									\$113,100
Environmental 5%									\$188,501
Engineering & Surveying 8%									\$301,601
Construction Supervision 5%									\$188,501
Contingency 30%									\$1,131,003
<b>Total</b>									<b>\$5,957,000</b>

## **Note on Benefit/Cost Spreadsheets**

The following spreadsheets provide present value calculations for costs and benefits associated with the base case, which includes US road construction costs of \$240 million, and total project capital costs of \$341 million. In these spreadsheets costs and benefits are discounted to a present value at a 3 percent rate. The results of applying discount rates of 5 percent and 7 percent are summarized in the body of the report. Present value and benefit/cost ratio sensitivity to differing construction cost and benefit assumptions are also provided in the body of the report.



## Bradfield/Iskut Transportation Corridor Construction and Operation/Maintenance Cost Summary

<b>Construction and Operations Cost</b>															
<b>all values in millions of US \$</b>	<b>Project Totals</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
US road construction	\$240.3					\$40.1	\$40.1	\$40.1	\$40.1	\$40.1	\$40.1				
Canadian road construction	\$65.4					\$10.9	\$10.9	\$10.9	\$10.9	\$10.9	\$10.9				
Ferry construction	\$14.0								\$7.0	\$7.0					
Ferry Terminal construction	\$12.3								\$6.2	\$6.2					
US EIS Cost	\$6.7	\$1.7	\$1.7	\$1.7	\$1.7										
Canadian EIS Cost	\$2.1	\$0.5	\$0.5	\$0.5	\$0.5										
Total Annual Capital Costs	\$340.8	\$2.2	\$2.2	\$2.2	\$2.2	\$51.0	\$51.0	\$51.0	\$64.1	\$64.1	\$51.0	\$0.0	\$0.0	\$0.0	\$0.0
<b>Annual O&amp;M Costs</b>															
US road maintenance	\$0.6							\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6
Canadian road maintenance	\$0.8							\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8
Ferry operations (net)	\$0.0							\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Terminal Maintenance	\$0.0							\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Total Annual O&M Costs		\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4
<b>Total Annual Capital and O&amp;M Costs</b>		\$2.2	\$2.2	\$2.2	\$2.2	\$51.0	\$51.0	\$52.4	\$65.5	\$65.5	\$52.4	\$1.4	\$1.4	\$1.4	\$1.4
<b>Present Value</b>	\$192.4														
<b>Total Canadian Costs</b>		\$0.5	\$0.5	\$0.5	\$0.5	\$10.9	\$10.9	\$11.7	\$11.7	\$11.7	\$11.7	\$0.8	\$0.8	\$0.8	\$0.8
Present Value	\$46.1														
<b>Total US Costs</b>		\$1.7	\$1.7	\$1.7	\$1.7	\$40.1	\$40.1	\$40.6	\$53.8	\$53.8	\$40.6	\$0.6	\$0.6	\$0.6	\$0.6
Present Value	\$146.3														
<b>Discount Rate</b>	3%														

## Bradfield/Iskut Transportation Corridor Construction and Operation/Maintenance Cost Summary

2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Residual Value
																\$185.9
																\$50.6
																\$9.6
																\$7.4
\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$253.5
\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	
\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	
\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	
\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	
\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	
\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	-\$253.5
\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	\$0.8	-\$50.6
\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	-\$202.9

## Bradfield/Iskut Transportation Corridor Benefits Summary

Potential Project Benefits																		
all values in millions of US \$	Study Period Totals	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Mining																		
Galore Creek	\$100							\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$5
Other Mining	\$72							\$3	\$3	\$3	\$3	\$3	\$3	\$3	\$3	\$3	\$3	\$3
Timber	\$0																	
BC	\$38							\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4
Alaska	\$8							\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2
Seafood	\$58							\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2
General Freight	\$97										\$2	\$2	\$4	\$4	\$4	\$5	\$5	\$5
Personal Travel	\$145										\$3	\$3	\$6	\$6	\$6	\$6	\$7	\$7
<b>Total Benefits</b>	\$518	0	0	0	0	0	0	16	16	16	21	21	24	24	24	25	26	22
<b>Present Value</b>	\$301																	
<b>Total Canadian Benefits</b>	\$282	0	0	0	0	0	0	12	12	12	14	14	15	15	15	15	16	12
Present Value	\$171																	
<b>Total US Benefits</b>	\$235	0	0	0	0	0	0	4	4	4	8	8	9	9	9	10	11	11
Present Value	\$130																	
<b>Discount Rate</b>	3%																	

## Bradfield/Iskut Transportation Corridor Benefits Summary

2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$0	\$0	\$0	\$0
\$3	\$3	\$3	\$3	\$3	\$3	\$3	\$3	\$3	\$3	\$3	\$3	\$3
\$2	\$2	\$3	\$3	\$3	\$3	\$3	\$3	\$3	\$3	\$3	\$3	\$3
\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$6	\$6
\$7	\$7	\$7	\$7	\$7	\$8	\$8	\$8	\$8	\$8	\$8	\$9	\$9
22	22	23	23	23	24	24	24	24	19	19	21	21
12	12	12	12	12	12	12	12	12	7	7	8	8
11	11	12	12	12	12	12	12	12	12	12	14	14